

WHAT IS CLAIMED IS:

1. A method for stimulating a high frequency production of Type II callus from immature embryos of elite corn inbreds which comprises culturing said embryos on a solid medium comprising sucrose and a monosaccharide sugar, wherein the concentration of said monosaccharide sugar is between about 5 g/L and about 30 g/L.
2. The method of claim 1, wherein said monosaccharide sugar is selected from the group consisting of glucose, maltose, lactose, sorbitol and mannitol.
3. The method of claim 1, wherein said monosaccharide sugar is glucose.
4. A method for transforming elite lines of corn using *Agrobacterium* comprising the steps of:
  - (a) co-cultivating an immature embryo from said elite line with *Agrobacterium* capable of transferring at least one gene to tissue of said elite line on a solid medium to produce an infected embryo;
  - (b) culturing the infected embryo on a solid medium comprising an antibiotic;
  - (c) culturing the resulting tissue on a solid medium comprising a selective agent to select for transformed tissue;
  - (d) selecting transformed tissue with growing Type II callus capable of forming water tower embryo structures; and
  - (e) regenerating plants from said embryo structures.
5. The method of claim 4, wherein, said *Agrobacterium* is selected from *Agrobacterium* one to two days after rescue from frozen glycerol stocks.
6. The method of claim 4, wherein said co-cultivating is performed at a temperature of 15° C to about 28° C.
7. The method of claim 6, wherein said temperature is 19° C.

8. The method of claim 4, wherein a heat shock treatment is applied during co-cultivation, said heat shock treatment comprising a temperature of 35° C to 55° C for 10 minutes to 180 minutes.
9. The method of claim 8, wherein said heat shock treatment comprises a temperature of 45° C for 30 minutes to 60 minutes.
10. The method of claim 8, wherein said heat shock is performed at 24 hours to 72 hours after initiation of co-cultivation.
11. The method of claim 10, wherein said heat shock is performed at 48 hours to 54 hours after initiation of co-cultivation.
12. The method of claim 4, wherein said medium comprising an antibiotic further comprises a monosaccharide sugar.
13. The method of claim 12, wherein said monosaccharide sugar is selected from the group consisting of glucose, maltose, lactose, sorbitol and mannitol.
14. The method of claim 13, wherein the concentration of said monosaccharide sugar is from 5 g/L to 30 g/L.
15. The method of claim 4, wherein the concentration of antibiotic in the medium of step (b) is from 15 mg/L to 75 mg/L.
16. The method of claim 15, wherein the concentration of said antibiotic is 50 mg/L.
17. The method of claim 4, which further comprises the step of:  
(b1) culturing the resulting tissue on a solid medium comprising an antibiotic and a selective agent.
18. The method of claim 17, wherein the tissue is cultured on the medium for two passages.

19. The method of claim 18, wherein the first passage is on said solid medium comprising a low concentration of antibiotic and the second passage is on said solid medium comprising a high concentration of antibiotic.
20. The method of claim 19, wherein said low concentration of antibiotic is from 15 mg/L to 75 mg/L and said high concentration of antibiotic is from 150 mg/L to 350 mg/L.
21. The method of claim 20, wherein said low concentration of antibiotic is 25 mg/L and said high concentration of antibiotic is 250 mg/L.
22. A method for transforming elite lines of corn using *Agrobacterium* comprising the steps of:
  - (a) co-cultivating an immature embryo from said elite line with *Agrobacterium* capable of transferring at least one gene to tissue of said elite line on a solid medium to produce an infected embryo;
  - (b) culturing the infected embryo on a solid medium comprising an antibiotic and a monosaccharide sugar in an amount of from 5 g/L to 30g/L;
  - (c) culturing the resulting tissue on a solid medium comprising an antibiotic and a selective agent;
  - (d) culturing the resulting tissue on a solid medium comprising a selective agent to select for transformed tissue;
  - (e) selecting transformed tissue with growing Type II callus capable of forming water tower embryo structures; and
  - (f) regenerating plants from said embryo structures.
23. The method of claim 22, wherein said monosaccharide sugar is selected from the group consisting of glucose, maltose, lactose, sorbitol and mannitol.
24. The method of claim 22, wherein, said *Agrobacterium* is selected from *Agrobacterium* one to two days after rescue from frozen glycerol stocks.
25. The method of claim 22, wherein co-cultivation is performed at a temperature of 19° C.

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26. The method of claim 22, wherein a heat shock treatment is applied during co-cultivation, said heat shock treatment comprising a temperature of 35° C to 55° C for 30 minutes to 60 minutes.
27. The method of claim 25, wherein said heat shock is performed at 24 hours to 72 hours after initiation of co-cultivation.
28. The method of claim 22, wherein the concentration of antibiotic in the medium of step (b) is from 15 mg/L to 75 mg/L.
29. The method of claim 17, wherein the tissue is cultured on the solid medium in step (c) for two passages.
- 10 30. The method of claim 29, wherein the first passage is on said solid medium comprising a low concentration of antibiotic and the second passage is on said solid medium comprising a high concentration of antibiotic.
31. The method of claim 30, wherein said low concentration of antibiotic is from 15 mg/L to 75 mg/L and said high concentration of antibiotic is from 150 mg/L to 350 mg/L.
- 15 32. A method for transforming elite lines of corn using *Agrobacterium* comprising the steps of:
- (a) co-cultivating at a temperature of 19° C an immature embryo from said elite line with *Agrobacterium* capable of transferring at least one gene to tissue of said elite line on a solid medium to produce an infected embryo, said *Agrobacterium* is selected from *Agrobacterium* one to two days after rescue from frozen glycerol stocks;
- 20 (b) culturing the infected embryo on a solid medium comprising an antibiotic at a concentration of 15 mg/L to 75 mg/L and a monosaccharide sugar selected from the group consisting of glucose, maltose, lactose, sorbitol and mannitol in an amount of from 5 g/L to 30g/L;
- (c) culturing the resulting tissue on a solid medium comprising an antibiotic and a selective agent;
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(d) culturing the resulting tissue on a solid medium comprising a selective agent to select for transformed tissue;

(e) selecting transformed tissue with growing Type II callus capable of forming water tower embryo structures; and

(f) regenerating plants from said embryo structures.

33. The method of claim 32, wherein the tissue is cultured on the solid medium in step (c) for two passages.

34. The method of claim 33, wherein the first passage is on said solid medium comprising a concentration of antibiotic of from 25 mg/L to 60 mg/L and the second passage is on said solid medium comprising a concentration of antibiotic of from 200 mg/L to 300 mg/L.

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